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EXAMINER	
KHAN, USMAN A	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/647,453	OKADA, HIROYUKI	
	Examiner	Art Unit	
	Usman Khan	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

Applicant's arguments filed on 02/05/2007 with respect to claims 1 - 20 have been considered but are moot in view of the new ground(s) of rejection.

Regarding rejection under second paragraph of 35 U.S.C. 112 provided in the previous office action for claim 4. Applicant has amended claim 4 to overcome the rejection under second paragraph of 35 U.S.C. 112 hence the rejection is withdrawn.

Regarding **claims 1, 13, and 18**, Applicant argues that these claims distinguish over Ishida et al. by requiring the function of the detection circuit as detect whether the position of the drive member is or is not changed at a predetermined time. However it is clear from column 6; lines 64 *et seq.* number or amount of rotations of the motors are detected by encoder 33; Applicant also argues that these claims distinguish over Ishida et al. by requiring a detection circuit to detect whether the position of the driven member has or has not changed. However it is clear from figure 4; items 33 and 63, and column 6; lines 64 *et seq.*; output from the encoder 33 is fed back to the direction controller 63; also 61 and 62 are driven by the controller 63 i.e. a detection circuit to detect whether the position of the driven member has or has not changed.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objection

Claim 18 is objected to because of the following informalities: To conform to the original claims "detecting whether the detects whether the" should be changed to "detecting whether the" in claim 18 line 4, since the applicant did not intend to change this portion of the claim. Appropriate correction is required.

Claim 18 is objected to because of the following informalities: in line 4 of claim 18 the applicant made an amendment to "detecting whether the" without underlining the new portion of the claim. In line 7 of claim 18 the applicant made an amendment to "the driving member" without underlining the **whole** new portion of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 - 9, 12 - 16, 18 - 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishida et al. (US patent No. 6,639,625).

Regarding **claim 1,** Ishida et al. discloses a driving controller (figure 4; item 63) for controlling driving of a plurality of driving units physically connected with one another (figure 4; items 61 and 62), at least a particular one of which includes a driving member frictionally engaged with a driven member (figure 4; item 10, 61, and 62; it is inherent that the image sensing unit 10 [i.e. driven member] will be frictionally engaged with the driving members 61 and 62 and its components), comprising: a driving circuit which supplies a driving signal to the plurality of driving units (figure 4; items 61, 62, and 63); a detecting circuit which detects whether the position of the driven member is changed at a predetermined time (column 6; lines 64 *et seq.*; number or amount of rotations of the motors are detected by encoder 33); and a controlling circuit which is responsive to the detecting circuit (figure 4; items 33 and 63, and column 6; lines 64 *et seq.*; output from the encoder 33 is fed back to the direction controller 63), and controls the driving circuit to drive the particular driving unit including the driving member, and another driving unit at a predetermined timing when the detecting circuit detects the position of the driven member is not changed at the predetermined time (figure 4; items 33 and 63, and column 6; lines 64 *et seq.*; output from the encoder 33 is fed back to the direction controller 63; also 61 and 62 are driven by the controller 63).

Regarding **claim 2,** Ishida et al. discloses the driving controller according to claim 1, wherein the controlling circuit controls the driving circuit to drive the particular driving unit having the driving member and another driving unit at the same time (figure 4; item 63, and column 6; lines 64 *et seq.*).

Regarding **claim 3,** Ishida et al. discloses the driving controller according to claim 2, wherein the particular driving unit including the driving member is arranged at a position to receive a vibration generated by the another driving unit (it is inherent that in figure 4 the drive mechanisms 61 and 62 i.e. driving units receive some sort of vibration from one another when they are moved).

Regarding **claim 4,** Ishida et al. discloses the driving controller according to claim 2, wherein the particular driving unit including the driving member and the another driving unit are mounted on a common member (figure 3; item 22).

Regarding **claim 5,** Ishida et al. discloses the driving controller according to claim 2, wherein a driving axis of the particular driving unit including the driving member perpendicularly intersects a driving axis of the another driving unit (figure 4; items 61 and 62, i.e. X and Y axis movement).

Regarding **claim 6,** Ishida et al. discloses the driving controller according to claim 1, wherein the controlling circuit controls the driving circuit to drive the particular driving

unit having the driving member and another driving unit one after another (column 6; lines 64 *et seq.* motion detected is fed back to the controller this input is used to reorient the image sensing device).

Regarding **claim 7,** Ishida et al. discloses the driving controller according to claim 6, wherein the particular driving unit including the driving member is arranged at a position to receive a vibration generated by the another driving unit (it is inherent that in figure 4 the drive mechanisms 61 and 62 i.e. driving units receive some sort of vibration from one another when they are moved).

Regarding **claim 8,** Ishida et al. discloses the driving controller according to claim 6, wherein the particular driving unit including the driving member and the another driving unit are mounted on the common member (figure 4; items 61 and 62).

Regarding **claim 9,** Ishida et al. discloses the driving controller according to claim 1, wherein a driving axis of the particular driving unit including the driving member perpendicularly intersects a driving axis of the another driving unit (figure 4; items 61 and 62, i.e. X and Y axis movement).

Regarding **claim 12,** Ishida et al. discloses the driving controller according to claim 1, wherein the detecting circuit detects whether a driven member to be driven by the driving member of the another driving unit is being driven (column 6; lines 64 *et*

seq.) in addition to detection as to whether the driven member to be driven by the driving member of the particular driving unit (column 6; lines 64 *et seq.*), and the controlling circuit controls the driving circuit to drive a driving unit corresponding to a driven member which is detected not to be driven by the detecting circuit (column 6; lines 64 *et seq.*).

Regarding **claim 13,** Ishida et al. discloses an image sensing apparatus comprising: an image sensing device which includes a number of pixels arrayed two-dimensionally (column 6; lines 6 – 19), and senses a light image from an object to generate an electrical image signal (column 6; lines 6 – 19, it is inherent that a CCD produces a electrical image signal corresponding to the input light); an optical system which focuses the light image on the image sensing device (column 6; lines 6 – 19); a plurality of driving units at least particular one of which includes a driving member frictionally engaged with a driven member mechanically connected with at least one of the image sensing device and the optical system (figures 2 and 4; items 61 and 62); a driving circuit which supplies a driving force to the plurality of driving units (figure 4; items 61, 62, and 63; and column 6; lines 64 *et seq.*); a detecting circuit which detects whether the position of the driven member is changed at a predetermined time (column 6; lines 64 *et seq.*; number or amount of rotations of the motors are detected by encoder 33); and a controlling circuit which is responsive to the detecting circuit (figure 4; items 33 and 63, and column 6; lines 64 *et seq.*; output from the encoder 33 is fed back to the direction controller 63), and controls the driving circuit to drive the particular driving unit

including the driving member, and another driving unit at a predetermined timing when the detecting circuit detects the position of the driven member is not changed at the predetermined time (figure 4; items 33 and 63, and column 6; lines 64 *et seq.*; output from the encoder 33 is fed back to the direction controller 63; also 61 and 62 are driven by the controller 63).

Regarding **claim 14,** Ishida et al. discloses the image sensing apparatus according to claim 13, wherein the particular driving unit including the driving member is adapted for moving the image sensing device in a first direction, and the another driving unit is adapted for moving the image sensing device in a second direction perpendicularly intersecting the first direction (figure 4; items 61 and 62, i.e. X and Y axis movement).

Regarding **claim 15,** Ishida et al. discloses the image sensing apparatus according to claim 14, wherein a driving axis of the particular driving unit including the driving member perpendicularly intersects a driving axis of the another driving unit (figure 4; items 61 and 62, i.e. X and Y axis movement).

Regarding **claim 16,** Ishida et al. discloses the image sensing apparatus according to claim 13, wherein the particular driving unit including the driving member is adapted for moving the optical-system along an optical-axis direction (figure 4; items 61 and 62, i.e. X and Y axis movement).

Regarding **claim 18,** Ishida et al. discloses a method for controlling driving of a plurality of driving units physically connected with one another (figure 4; items 61 and 62), at least a particular one of which includes a driving member frictionally engaged with a driven member (figure 4; item 10, 61, and 62; it is inherent that the image sensing unit 10 [i.e. driven member] will be frictionally engaged with the driving members 61 and 62 and its components), comprising the steps of: detecting whether the position of the driven member is changed at a predetermined time (column 6; lines 64 *et seq.*; number or amount of rotations of the motors are detected by encoder 33); and driving the particular driving unit including the driving member, and another driving unit at a predetermined timing when the detecting circuit detects the position of the driven member is not changed at the predetermined time (figure 4; items 33 and 63, and column 6; lines 64 *et seq.*; output from the encoder 33 is fed back to the direction controller 63; also 61 and 62 are driven by the controller 63).

Regarding **claim 19,** Ishida et al. discloses the method according to claim 18, wherein the particular driving unit having the driving member and the another driving unit are driven at the same time (figure 4; item 63, and column 6; lines 64 *et seq.*).

Regarding **claim 20,** Ishida et al. discloses the method according to claim 18, wherein the particular driving unit having the driving member and the another driving

unit are driven one after another (column 6; lines 64 *et seq.* motion detected is fed back to the controller this input is used to reorient the image sensing device).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al. (US patent No. 6,639,625) in view of Ackermann et al. (US PgPub 2001/0017665).

Regarding **claim 10,** as mentioned above in the discussion of claims 1, Ishida et al. teaches all of the limitations of the parent claims. However, Ishida et al. fails to teach that the driving controller according to claim 1, wherein the driving unit includes an electromechanical conversion element which elongates and shrinks in response to the driving signal from the driving circuit, the driving member is connected with the electromechanical conversion element. Ackermann et al. on the other hand discloses that the driving unit includes an electromechanical conversion element which elongates and shrinks in response to the driving signal from the driving circuit, the driving member is connected with the electromechanical conversion element.

More specifically, Ackermann et al. teaches that the driving unit includes an electromechanical conversion element which elongates and shrinks in response to the driving signal from the driving circuit (paragraph 0007; vibrations), the driving member is

connected with the electromechanical conversion element (figure shown in the invention and paragraph 0005 *et seq.*; items 1a-1c and 3a-3c).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Ackermann et al. with the teachings of over Ishida et al. because in paragraph 0004 Ackermann et al. teaches that the use of piezoelectric actuators and elements are flexible in use and can be realized at minimal cost.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al. (US patent No. 6,639,625) in further view of Suzuki (US patent No. 6,269,580).

Regarding **claim 11,** as mentioned above in the discussion of claims 1, Ishida et al. teaches all of the limitations of the parent claims. However, Ishida et al. fails to teach that the driving controller according to claim 1, wherein the controlling circuit controls the driving circuit to increase the driving force of the particular driving unit having the driving member and the another driving unit in a stepwise manner. Suzuki, on the other hand discloses that the controlling circuit controls the driving circuit to increase the driving force of the particular driving unit having the driving member and the another driving unit in a stepwise manner.

More specifically, in figure 5 and in column 7 lines 17 *et seq.* Suzuki teaches that the controlling circuit controls the driving circuit to increase the driving force of the particular driving unit having the driving member in a stepwise manner. This controlling method can be applied to Ishida et al. invention to control a plurality of driving units.

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Suzuki with the teachings of Ishida et al. to finely adjust the focal point easily (column 1 liens 65 – 68 of Suzuki).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al. (US patent No. 6,639,625) in further view of Emura (US patent No. 5,768,038).

Regarding **claim 17,** as mentioned above in the discussion of claims 16, Ishida et al. teaches all of the limitations of the parent claims. However, Ishida et al. fails to teach that the image sensing apparatus according to claim 16, wherein the another driving unit includes a vibrator for vibrating the apparatus. Emura, on the other hand discloses that the driving unit includes a vibrator for vibrating the apparatus.

More specifically, in figure 5 and in column 2 lines 18 *et seq.* Emura teaches that the driving unit includes a vibrator for vibrating the apparatus.

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Emura with the teachings of Ishida et al. because in column 2 lines 12 – 26 Emura teaches the use of a lens drive system as disclosed includes a vibrator and in the system produces a required space which is very small, the degree of freedom for mounting is larger, power consumption is reduced, and no noise is generated.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Usman Khan whose telephone number is (571) 270-1131. The examiner can normally be reached on Mon-Thru 6:45-4:15; Fri 6:45-3:15 or Alt. Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Usman Khan
04/18/2007
Patent Examiner
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